



BRITISH HONDURAS.
DEPARTMENT OF AGRICULTURE
ANNUAL REPORT FOR 1948.



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REVIEW.

The total area of the Colony is 8,600 square miles, of which only approximately 60,000 to 70,000 acres have been cultivated or used for agriculture in any one year. For the remainder the relatively small population have worked it over for various forest products which have enabled them to maintain a relatively high standard of living in the past. This forest economy has engendered a glorious sense of isolation and independence. Agricultural development has run up against two major problems as a result in the past. The first problem has been that of the high cost of labour in comparison with labour of similar quality in purely agricultural countries. The second problem has been the almost complete absence of road transport and therefore the development of parochialism in local tastes and demand for agricultural produce. As a result of two major wars and the recent completion of road systems in the northern areas, this is tending gradually to disappear. At the same time, improved communications and machinery for the extraction of lumber has accelerated the removal of the accessible forest reserves.

The stage was set for a more rational approach to the problem of agriculture therefore. Apart from the Mayan Indian population, there has been no experienced body of agriculturalists in the country, however. The Mayan Indian is wedded to his "Milpa" system of shifting cultivation and at planting time leaves all other work for that of his traditional corn planting. As a small beginning towards the solution of this problem, the experiment of taking unemployed from Belize to work on a large scale farming scheme, was started in 1948 at the Central Farm of the Department in Cayo.

The "milpa" system as practised from time immemorial by the Mayan Indians and adopted by other immigrants, is outmoded as hopelessly uneconomic both from the point of view of the amount of labour required and the terrible waste of such natural assets as timber and soil fertility. The returns in the form of food or cash have not been commensurate with the expenditure of labour and national wealth. There is an urgent need for a system of farming which will replace the "milpa" system and at the same time be acceptable to the various classes of the rural community. That the old order must give place to the new is indicated by the decline in the volume of forest products and also in the decline in the amount of "high bush" which is the main prerequisite of the present "milpa" system.

A study of the history of agriculture in this country has shewn that at one time a very useful cacao industry had been developed, the exports of which amounted to approximately 48,000 lbs per annum from 1907 to 1913. This export was in addition to the amounts required to meet local requirements. There has persisted a small trade in chocolate with Mexico. The prices which have been paid to the Mayan Indians who have supplied most of this chocolate in the past, have been unattractive and the demand sporadic. It is difficult to know why the original export industry was permitted to die out. The fact remains, however, that the original cacao trees are still to be found abandoned in the forest but nevertheless doing well. These trees only require to be given sufficient light to induce them to bear useful crops. Cacao trees are to be found from Corozal in the north to Dolores in the south of the Colony. They are principally of a type introduced from the Caribbean Islands. This has largely replaced the original Criollo types favoured by the Mayan Indian in former days. It would appear that some crossing between the Criollo and Caribbean types has occurred, however. This has led to the hope that among the trees in this Colony may be found a suitable type or types for the production of high quality and, possibly, high yielding clones.

A disquieting feature of agriculture in the past has been the lack of appreciation by the public of urgent problems of bush fires, cattle trespass and pre-dial larceny. Unless public opinion is behind the farmer in these matters, the

most perfect laws in the world are useless. If agricultural development is to proceed smoothly, it will be essential to build up a body of sane public opinion in these three important matters. Undoubtedly an "urban" attitude toward the farmer and his property has prevailed in the past. Every section of the population will need to co-operate fully if this is to be changed in the future and so permit of the orderly and harmonious development of the countryside.

Reference has been made to "parochialism" in the demands for agricultural produce in the past. This applies equally to supplies of locally grown foodstuffs. Growers supplying isolated communities have developed the habit of withholding supplies in order to maintain artificially high prices. Such a policy is detrimental both to the producer and the consumer, and has led to the neglect of many local products because an imported substitute has been found to be just as cheap or cheaper. Reference to Table II at the end of this Report will shew that the results of this short sighted policy on the part of the grower has resulted in the maintenance over the past three years of a high level of imports of foodstuffs, much of which could have been produced here. With the large scale development of the Stann Creek Valley, this feature will need to be watched if costs of production are to be kept within reasonable limits. It is hoped that the feeder road programme, by tapping larger agricultural areas, may help to create a freer flow of locally grown foodstuffs at competitive rates. The "feeder" road for the Stann Creek Valley is that from Middlesex to Roaring Creek. The building of this road should enable the products of the livestock industry of the Cayo District to reach the Stann Creek Valley at economic rates.

SECTION I—PART I.

GENERAL SURVEY OF AGRICULTURE IN THE COLONY.

Climate. In most areas climatic conditions were favourable to the increased production of the majority of crops. The principal exception to this was in the Northern District where excessively heavy rains caused local flooding of corn lands at the time when the crop was germinating and during early growth. Later in the season a period of exceptional drought reduced the yields of all crops and largely destroyed the winter vegetable crop.

The deleterious effects of the dry season on livestock of all kinds was less marked in 1948 than in 1947. In nearly all areas the pastures came through the dry season in better condition and were able throughout to carry the livestock in reasonably good condition.

Rainfall was below average for the Colony as a whole but precipitation was well distributed and therefore much more effective than in years of heavy storms and flooding. There was no damage by hurricane nor any serious damage by high winds.

Meteorological figures for the year are at Tables III and IV. Table III was compiled from records at the principal Agricultural Stations. Table IV gives the rainfall figures at various towns in different parts of the Colony.

AGRICULTURAL POLICY.

The Committee appointed to formulate an agricultural policy for British Honduras, under the Chairmanship of the Director of Agriculture, met twice in October and twice in November. It was not possible to arrange a meeting in December or the report might have been ready by the end of the year.

In order to expedite the work of the Committee, a full draft had been prepared and submitted to each member upon his appointment. This draft proved most useful as a working basis for the deliberations of the Committee at its meetings.

CROP PRODUCTION.

The campaign for the production of food crops was continued with unflagging zeal in all Districts.

One very encouraging result of this campaign was the gratifying appearance of corn, for the first time, in the list of exports. It is to be hoped that this may be a small start to make British Honduras a useful source of supply for the Caribbean area where there is a growing demand for this commodity.

With the exception of Belize District, where weather conditions were generally unfavourable, the production of paddy rice by small farmers increased in all Districts. As this production was almost entirely from plots cleared and cultivated for this purpose and not, as in the past, on plots intended to be planted in bananas subsequently, it is hoped that increased rice production may have become a permanent feature of local agriculture.

It was unfortunate that conditions were unfavourable in nearly all areas for the bean crop and the winter crop of vegetables.

The export figures for citrus tell their own tale of active development in the Stann Creek Valley and indicate the upward swing in the production of a variety of citrus products.

The coconut industry experienced a difficult year, particularly in the Northern District where there was a sharp decline in yields due to general unthriftiness of the coconut palms.

In the Northern District there was renewed interest by small farmers in the planting of sugar cane. Production of rum increased, with an unfortunate decline in the production of white sugar. It is to be hoped that the increased demand for both these commodities may result in increased sugar cane planting to the point where all local demands can be met.

FOOD CROPS.

Corn (Maize). In spite of unfavourable weather conditions in the Northern and Belize Districts which between them produced most of the marketable crop, the acreage planted in 1948 advanced to 14,554 from 12,454 acres in 1947.

The marketing of the 1947 crop proceeded until the end of June 1948. During that period purchases by the Board of Agriculture were 734,976 lbs. In view of these heavy sales during the first half of the year, it was considered expedient not to open the buying in the second half of 1948 until December, owing to the risk of heavy losses through the purchase of new crop. Purchases of this crop in the second half of 1948 amounted to 504,300 lbs., making a total of 1,239,276 lbs. purchased during the year.

In addition to sales to the Board of Agriculture, appreciable sales to live-stock owners in the Colony took place. These were at a lower level than in previous years. The Mayan Indians retained ample stocks throughout the year for their domestic consumption and pig feed. The only exceptions were in one or two areas of the Toledo District, where reports indicated that stocks had proved inadequate.

Approximately 98% of the total corn crop was purchased in the Northern District and stored in Belize. With the great increase in this crop, the storage facilities available proved to be inadequate and unsuitable. Owing to lack of suitable storage, it was necessary to dispose of the corn irrespective of ruling market conditions. It became obvious that provision was needed to enable the corn to be held until sales could be effected to the best advantage, if this is to become a profitable export crop.

Rice. Proposals were made in January 1948 for the development of the rice growing areas along the Punta Gorda to San Antonio road in the Toledo District, but funds were not forthcoming in time for the work to be undertaken for the 1948 rice season. The Survey Department co-operated actively in taking levels in connection with proposals for better control of water in the area. The levels indicated the general practicability of reasonably sound measures for water control.

Another extensive area (computed approximately at 10,000 to 12,000 acres) was investigated along the Mussel Creek of the Belize District. Here also measures for water control will be necessary before large scale production can be undertaken. This area appears to be sufficiently large to carry a complete commercial unit including an up-to-date rice mill. It has the advantage of close proximity to Belize and the main Belize to Cayo road.

Early inspection of rice growing possibilities in other areas and expeditious legislative action resulted in the gazetting in February and March of three new Rice Reserves in the Toledo and Stann Creek Districts. Of these, that on the Monkey River proved to be the most successful. This was largely due to the efforts of the staff of the Department in getting the growers to work co-operatively to clear, plant and harvest the crop. As a result imports of rice in-

to the area were eliminated and growers marketed 81,220 lbs. of paddy for which they received \$3,329.00. Another encouraging feature was the increased production and sales of rice paddy in the Northern District. The acreage advanced from 2,460 acres in 1947 to 3,260 in 1948 and sales of paddy from 4,660 lbs. in 1947, to approximately 27,000 lbs. in 1948.

Arrangements were made for the Department to undertake the marketing of the 1948 rice crop in the Toledo District, pending the formation and operation of the Marketing Board. Total purchases of rice paddy here amounted to 449,000 lbs.

Some progress was made towards the production of a pure seed supply to replace the present mixture of varieties which is normally sown.

The crop was free from disease in all areas except the Belize District where unfavourable weather conditions adversely affected growth and yield.

Pulses. The autumn planted crops in 1947 made good growth and yielded above average. Local market prices were higher than those offered by the Board of Agriculture and the crop was disposed of in the local markets.

The weather conditions in the autumn of 1948 were everywhere unfavourable and, with the exception of the black bean crop produced by the Mayan Indians in rotation with the corn crop, the acreage established to the various pulses was smaller than in 1947.

Stocks of locally grown red kidney bean seeds had been held to meet local demands and reduce imports from dollar areas. The early sowings germinated well. The early sown crop was destroyed by excessively wet conditions. The seed rapidly lost its viability in store and difficulties were encountered with the establishment of later sowings.

A small supply of baby red beans seed was obtained but arrived too late to be successful in increasing the production of this crop.

Sesame. The discovery of a white seeded variety in small plots but of general cultivation made this appear a likely crop for development in all the corn growing areas. To encourage production a price of ten cents per lb. was guaranteed until April 1949. With the assistance of the Development, Co-operative and Social Welfare Officer, a small quantity of high grade white seed was imported. Unfortunately it arrived too late in the year for the main crop.

There was a marked increase in production but local demand created an artificially high price and sales were entirely to the local markets for the confectionery trade.

Root Crops. The principal root crops comprised *cassava*, *coco* (*Xanthosoma* sp.), *sweet potatoes* and *yams*, and were produced in small plots in all Districts. The standard of cultivation was generally poor and yields low. Prices for these root crops are relatively high compared with imported Irish potatoes.

There was a slight increase in the area under cassava in the principal Carib settlements. The acreage is still too small to provide any appreciable food reserve, however.

Root crops should normally provide the bulk of the cheap starchy foods required by workers and others. This is not the case however, as ruling prices in Stann Creek which produces these crops on the spot, were anything from three cents to ten cents per lb. according to variety and season.

OTHER CROPS.

Coconuts. The generally poor and unthrifty state of the palms in the Northern District caused considerable concern. The trouble was investigated and a preliminary report was prepared and submitted. It proved impossible to trace any specific causative organism. Evidently a number of factors are involved of which lack of drainage, the effects of fire and general neglect of proper cultural methods were the principal.

There was a marked uneasiness in the industry as to the future of the market for whole nuts as a result of which growers came to appreciate the value of co-operation in the marketing of the crop locally for oil production. The details of the scheme were still under consideration at the end of the year.

Prices for selected nuts varied from \$50 to \$25 per 1,000 during the year.

Vegetables. The Department imported an increased quantity of vegetable seeds for sale to growers. Sales were brisk and prospects bright until the exceptionally heavy rains of November and December destroyed the young crops. Growers replanted their areas but the crops were late and the local demand in December had to be met by importations. The cost of all vegetables was therefore abnormally high.

Bananas. Production for export continued to decline, very largely due to the earlier onset of Leaf Spot Disease in newly established plantations. This disease defoliated young plants and reduced the size of the bunches below the limit acceptable for export. Previously growers had relied upon getting one good crop before the disease became too severe to affect the size of the bunch materially.

Exports from the Toledo District declined from 49,593 bunches in 1947 to 28,622 bunches in 1948. In Stann Creek there was a similar decline, the numbers being 27,065 in 1948 compared with 42,842 in 1947.

There was a small increase in the production of the Lacatan variety in Stann Creek where growers were hopeful of export possibilities to the United Kingdom.

Citrus. Commercial nurseries covering five or six acres were established by the principal producers in the Stann Creek Valley. The intention was to raise sufficient seedling stocks to plant approximately 1,000 acres of Valencia oranges.

The first shipment of whole grapefruit since 1941 comprised 68,897 cases compared with a total shipment in 1939 of 64,049 cases.

There were average crops of grapefruit and oranges in the Northern and Belize Districts. Sales in the former were slow and prices unsatisfactory generally; in the latter sales continued to be almost entirely to the Belize market for local consumption.

Exports of grapefruit juice were slightly lower than in 1947 but of a higher value. Orange juice was exported for the first time. This addition to the range of exportable citrus crops is welcome as a useful spread of the industry which is becoming less dependent therefore upon the original single grapefruit crop.

Sugar Cane. Some improvement in the methods of production in the field was noticeable in the Northern District where the area under planted cane increased considerably.

Factory production at Pembroke Hall during the past four years has been:—

1945	....	....	....	....	374 tons sugar
1946	....	....	....	....	808 " "
1947	....	....	....	....	1,239 " "
1948	....	....	....	....	1,081 " "

In this District production of rum was 38,961 proof gallons as against 29,200 in 1947.

The total purchases of sugar cane by the factory during 1948 were 10,502 tons.

Production of brown sugar in the Toledo District amounted to 120 tons. This was produced under very primitive conditions but on account of the general shortage of the commodity, found a ready market at relatively high prices.

Tobacco. During April plans were made for trials with a variety of tobacco likely to produce marketable wrapper leaf under local conditions. These plans were possible as a result of the provision of \$5,000 towards their cost by one of the Colony's most prominent business men. The trials were laid down at the Agricultural Station, Orange Walk under the control of a board of management appointed by the Governor. An expert in the growing and preparation of the crop was obtained from one of the neighbouring Central American States. By the end of the year a promising crop had been grown and harvested and the necessary building to dry, ferment and cure the leaf had been erected.

It had been found impossible to dispose of the small crop of tobacco (a heavy pipe type) grown by the Mayan Indians in the Yo Creek neighbourhood in 1947. Little interest was taken in this crop by these growers in 1948 therefore.

Cacao (Cocoa). As a result of the visit by the Cacao Agronomist, Trinidad, and the resultant encouraging report submitted by him, renewed interest was shewn in this crop. The various abandoned areas in the Stann Creek, Sittee River, Monkey River, San Antonio and Dolores areas were visited and inspected. Wherever possible selections of possible good quality and high yield-

ing trees were made. On the Serpon Estate in the Sittee area, clearing of the old cacao fields was actively undertaken and as a result an encouraging crop set on the trees so cleared.

The growth of the trees and the appearance of the crop carried on them, even when they were in high bush, gave clear indications of the suitability of the various areas in the south of the Colony for cacao production. A striking feature of the crop was its apparent freedom from disease and the strong vegetative growth of the trees, particularly those which appeared to be a Criollo Forastero cross.

DISEASES AND PESTS OF CROPS.

Wee Wee Ant (Atta Cephalotes). This remained the major pest of agricultural lands and caused more concern to the farming community than any other single pest or disease. The field staff of the Department assisted with advice, with the provision of poison dusts, and with practical demonstration of their use to control this pest. Control of the pest does not appear to be a practical possibility so long as the present extensive system of agriculture persists. The cost of protecting small scattered plots adjoining dense bush is uneconomic with the form of control now available. In order to encourage growers and obtain the widest possible appreciation of the use of the pumps and dusts available, a small scheme to subsidize the sale of poison dusts to the small farmer was inaugurated during 1948. It is to be hoped that supplies may become more plentiful and the price of suitable poison dusts may fall to a point within the means of the majority of farmers in the Colony.

Coconut Scale (Aspidiotus destructor). Examination of the coconut groves in the Northern District proved the widespread presence of at least one species of *Coccinellidae*. This was discovered to multiply rapidly with the increase of food supplies in the form of the scale, and to become a complete controlling factor in the various areas of the District inspected. It is not known whether local climatic factors affect the multiplication and effective control of leaf scale by these parasites. There could be no doubt, however, that in 1948 control was highly effective by this natural means.

Mexican Fruit Fly Anastrepha ludens (Lw). With regular picking, better general care and management of the citrus orchards, this pest became of minor importance.

Sigatoka Leaf Spot (Cercospora musae). This disease continued to be by far the most serious disease of bananas and was everywhere responsible for reducing the yields of the Gros Michel variety to an uneconomic level. It is impossible to be certain whether the disease has increased in virulence or whether the resistance of the crop itself is being lowered progressively.

Panama Disease (Fusarium Cubense). Although still present throughout the southern areas of the Colony, this disease did not appear to be causing as much serious damage as previously. It is impossible to give a reason for this at present.

Mosaic Disease of Cassava. Reports were received of the appearance of this disease in the Stann Creek area. Measures were taken to destroy all diseased plants seen.

Frog-hoppers. These insects were found both on sugar cane and rice (British Guiana 79) in the Toledo District. It was reported as causing only minor damage in this District.

Cassava Caterpillars. These insects appeared on several occasions during the first half of the year. They were reported principally from Stann Creek where an effective method of control was found to be a flock of turkeys.

BOARD OF AGRICULTURE.

There were nine full meetings of the Board under the Chairmanship of the Director of Agriculture and one meeting at which official business could not be transacted for lack of the necessary quorum.

The unsatisfactory state of the Board was demonstrated by the precipitate resignation of the Secretary in March, lack of interest by two members from the outside districts, and the discovery, after the resignation of the Secretary, that the annual accounts for rice and rice products could not be made up accurately due to the loss of the necessary detailed accounts.

In May the first steps were taken to replace the Board of Agriculture by a Marketing Board. To enable the accounts of the Board of Agriculture to be completed in time for the Marketing Board to take over, all purchases by the former ceased in June 1948.

In order to provide for the marketing of the 1948 rice crop the Department of Agriculture in co-operation with the Import Control Department made detailed arrangements for the financing of this marketing and the purchase of the crop from growers by the field staff of the Department of Agriculture.

The rice and corn mills were operated throughout the year by the Import Control Department. Funds were voted in May by the Board of Agriculture for the better layout of the machinery in the Belize Rice Mill. Here the machinery had been found to be old and uneconomic to operate as it stood. Its economic operation was improved by altering the layout, with a resultant reduction in the manual labour required.

As soon as the Board was assured that a sufficient supply of corn existed to meet internal requirements, it recommended the issue of licences for the export of corn from the Colony.

SECTION I—PART II.

SURVEY OF THE LIVESTOCK INDUSTRY BY THE VETERINARY OFFICER, BELIZE.

LIVESTOCK.

Horses and Mules. The horse and mule industry in this Colony fell off considerably due to the fact that there were so few stallions and jacks of the right type for services and these were not available to the public, being owned and used by private persons for improving their own stock. One jack of any account is owned by the Belize Estate and Produce Company for service on their mares only. Good horses were in demand. The same applied to jacks. Two good sized jacks are badly needed as our chicle men are having a very difficult time to find replacements for their worn out mules. The offspring from such animals would surely replace the oxen for general farm work and help to speed up production and harvesting of foodstuffs.

Cattle. Cattle in this Colony improved somewhat but there was still much to be desired both in beef cattle and milch cows. The Belize Estate and Produce Company, Messrs. H. Melhado & Son, A. J. Hunter & Son, and G. Canton imported bulls and heifers during the year to improve their cattle, but the services of these bulls were not available to the public generally. In time, no doubt, those interested in these types of cattle will be able to purchase offspring from these imported animals for their benefit. The Government has four imported half-bred Holstein sires in service. These animals have been here going on 5 years and should be replaced by imported sires of a better type and breed to cross with the female offspring of these sires. The present sires should be shifted to other centres in the Colony that so far have not been able to obtain their services, the result of which compels owners to in-breed their cows and heifers, thereby producing a very inferior animal that is neither desirable for meat purposes nor capable of producing sufficient milk to properly care its young, nor fit for reproduction. Better types of beef animals are also greatly needed; animals that are hardy, develop or mature early, and produce the most amount of flesh with least amount of feed.

The cattle owners in all parts of the Colony awakened to the fact that better feeds, better care and a better class of animal were necessary in order to improve this industry, and were willing, with assistance from Government, to do all they could to carry out their portion of agricultural development.

An experiment with cattle feeding and grass growing was conducted in the Southern Mountain Pine Ridge at Augustine, in co-operation with the Conservator of Forests. This was started late in 1948. More will be heard from this experiment in 1949.

One Red Poll bull 17 months of age was purchased for service to cattle owners along the lower Belize River.

Swine. The hog industry was definitely on the rise and numerous people planned to enter this phase of livestock industry. The Government had six imported Berkshire boars for services. These, like the bulls, have been in service here for 2 years.

Replacements are necessary as well as the shifting of these sires to the more remote districts where their services are badly needed.

It is felt that although what is known as lard hog exists, bacon type sires should be imported as well. Messrs. H. Melhado & Son, G. Canton and E. S. Usher imported pure-bred boars and sows from the U.S.A. during the year. The offspring of these animals will no doubt later on assist in improving the swine population.

It is regretted to report that three of Government's imported Berkshire boars died during 1948 from a very infectious disease for which there is no cure. The loss of these animals has caused a great deal of concern to the farmers in the Districts in which they were stationed as well as to the Veterinary Officer. No replacements were available at the time. This caused the breeders to return to a poorer breed and type of sire in order to keep production going. Government would do well to import new sires and young pure-bred sows as well. By so doing Government can breed better sires locally and not have to keep importing sires in order to improve the types and breeds.

Sheep and Goats. Too little attention was given to these animals for reasons which cannot be understood. They are good for both meat and milk, especially the goats. Good milch goats are worth as much as local cows and are economical to raise and feed, providing also more milk than the average cow in this Colony. They are easily handled and require less feed; and goat's milk is the ideal food for children, especially where safe whole cow's milk is not obtainable. In order to improve this industry Government should import some good milch goats in the near future, to be distributed amongst the peasants and in some of the Districts where the raising and keeping of cattle is not practical due to lack of space and pastures.

Poultry. This phase of livestock industry grew considerably in 1948. Hundreds of pure bred chickens were imported into the Colony, and the success in raising these birds was exceptional. Although diseases wiped out a considerable number of poultry, the importation and increased production locally more than offset the loss from disease.

The poultry industry is one which requires a great deal of attention and hard work by the owners. Better sanitary measures must be adopted as well as better care and feeding if this industry is to flourish. It is hoped to be able in 1949 to institute a series of talks or papers on care, feed, management etc. of poultry in health and disease, as well as other livestock.

VETERINARY SERVICES.

Although the Veterinary Officer arrived here in May 1947 it was not until February 1948 that sufficient drugs and instruments arrived in order that these services could be really started in a proper manner. Realizing the vast territory to be served and the lack of proper transportation throughout the Colony, for one Veterinary Officer to handle these services, steps were taken to organize a group of young men already employed by the Department of Agriculture who were interested in livestock work. With the hearty co-operation of the Director of Agriculture, Farm Demonstrators from each of the Districts were selected to be Veterinary Assistants on part time, that is, they were part time on Agriculture and part time on Veterinary work. In April 1948 these men were taken to Stann Creek Agricultural Station (where accommodation etc. were to be had without any extra cost), and a course in practical Veterinary work was given to them as well as lectures on various subjects pertaining to Veterinary science. Eight men in all took the course. Due to circumstances beyond control the course had to be cut short. However, by hard work and the interest shown by these men, a good course was had by all. This fact has been proven since as all of these men have been kept busy doing Veterinary work in their Districts, almost on full time basis. It is true they are only laymen and because of this fact some owners were reluctant to have them attend to their animals. When these men feel the cases are beyond their scope, they call for help from the Veterinary Officer at once. In this way the Veterinary services have been made available to all sections in the Colony in one year. As time goes on, better services will be demanded by the livestock owners and better services will

have to be given. This can only be done by increasing the staff of qualified graduate veterinarians and by furnishing better transportation in all Districts. While it is realized that telephones are scarce and the costs of installing these are high, still better services can be given to the Districts if each assistant was provided with a telephone. Not that so many people would be calling them by phone, but when they have cases beyond their scope they could contact the Veterinary Officer quickly and receive instructions as to proper procedure and in many cases save the animal's life that would otherwise die because of the delay in obtaining advice etc. Also during the Veterinary Officer's tour of the Colony it was noted that a place like Isabella Bank with only 4 families and very little livestock, has a phone service; whereas Double Head Cabbage, populated with 150 to 160 people and 400 to 500 head of livestock and poultry, has none.

DRUGS.

Each assistant in his respective District was issued the following drugs (estimated in dollars and cents), during 1948:—

				Amount Issued	Amount sold and dispensed
F. F. Orio, Jr., Corozal	....	....	....	\$304.58	\$132.85
F. F. Orio, Sr., El Cayo	....	....	....	240.63	118.32
J. Swasey, Stann Creek	....	....	....	91.20	48.10
E. O. R. Gill, Punta Gorda	....	....	....	117.33	13.58
TOTAL	....	....	....	\$753.74	\$312.85

The peasant population in the Colony represent the majority and to bring the first year in operation first treatments were given free to livestock owners in order to encourage them in the right way of treating sick animals. On the other hand, most people or owners of livestock do not realize the value of the animals to the Colony and to themselves. Ninety percent of owners do not raise livestock; the animals raise themselves on meagre rations obtained by roaming the land. Once a year the owners round them up, brand those that have no brand on, and turn them loose again to seek a living wherever possible. They will not spend money for drugs etc. until they are shewn that it pays to do so. This state of affairs is due to several factors, some of which are as follows:—

- (1) Main source of income is from chicle and mahogany—livestock is a side line;
- (2) lands occupied are Crown lands and people will not spend money to improve pastures on land not their own;
- (3) lack of knowledge and experience in breeding, raising, feeding and caring for animals to produce more and better animals;
- (4) lack of proper veterinary services in years past.

DISEASES OF LIVESTOCK.

These are tabulated as follows in order of severity:—

Horses	Cattle	Sheep	Swine	Poultry
Distemper	Mineral deficiency	Mineral deficiency	Mineral deficiency	Mineral deficiency
Selenium poison	Mumps	Worm Infestation	Worm infestation	Nutritional Roop
Worm infestation	Ulcerative stomatitis	Foot Rot		
Ulcerative stomatitis	Indigestion		Necrotic Rhinitis	Fowl typhoid
Injuries	Worm infestation		Avitaminosis	Fowl Cholera
Tetanus	Acetonemia			Pullorum
				Coccidiosis

No serious outbreaks of contagious diseases were reported amongst animals during the year. There were 15 outbreaks of Fowl Typhoid—Cholera in the Northern District reported, and some 1,000 birds vaccinated and treated with satisfactory results. Owners, due to lack of communication as well as lack of desire to co-operate with Government Officials, fail to report these outbreaks until after birds in the country have died and disease has spread all over the country. It may be necessary for Government Officials to bring one or two of these people into court in order to make them realize the seriousness of the offence in not reporting these conditions as early as possible.

TREATMENT AND RESULTS.

The following is a table showing by District the number of animals treated and losses sustained:—

Animals		DISTRICT					Totals
		Toledo	Stann Creek	Cayo	North ern	Belize	
Horses & Mules	Treated	2	11	101	204	101	419
	Died	—	—	4	4	2	10
Cows	Treated	16	78*	269*	10*	63	463
	Died	4	2	10	1	5	22
Calves	Treated	9	—	—	—	14	23
	Died	3	—	—	—	3	6
Steers	Treated	9	—	—	—	—	9
	Died	2	—	—	—	—	2
Goats	Treated	2	—	—	—	—	2
	Died	1	—	—	—	—	1
Swine	Treated	154	21	18	18	11	222
	Died	1	—	—	4	2	7
Dogs	Treated	5	6	16	18	70	115
	Died	4	2	2	—	4	12

The above table does not include animal castrations of which there were approximately 1,200 animals all told castrated by the assistants during the year with only three deaths. This is remarkable considering conditions under which animals are kept in this Colony.

The following is a table showing Government owned livestock as listed at each Agricultural Station and in Mountain Pine Ridge area:—

AGRICULTURAL STATION.

Animals	Punta Gorda	Stann Creek	Cayo	Corozal	Belize	Moun- tain Pine Ridge	Totals
Imported Bulls	1	1	1	1	—	—	4
Grade bulls	—	2	—	1	1	—	4
Cows	4	10	1	8	—	5	28
Heifers	—	4	—	5	—	6	15
Steers	8	4	—	10	—	2	24
Calves	4	—	1	4	—	—	9
Imported Boars	—	1	2	2	1	—	6
Grade Boars	—	2	6	—	—	—	8
Sows	—	4	2	2	—	—	8
Gilts	—	—	12	2	—	—	14
Mules	—	—	1	1	—	—	2

*Includes calves and steers not classified in report.

It is proposed to reduce the number of all animals at the Agricultural Stations in 1949 as soon as Baking Pot Central Farm is ready to accommodate and maintain animals in the proper way. It is also proposed to increase the number of animals in the Mountain Pine Ridge area either from privately owned stock or Government animals.

ANIMALS SLAUGHTERED FOR FOOD PURPOSES.

Animals	Stann Creek	Cayo	Benque Viejo	Belize	Totals
Bulls	89	294	103	1,118	1,604
Cows	—	58	—	360	418
Steers	37	5	12	658	712
Heifers	—	2	1	5	8
Swine	116	260	83	4,979	5,438
Lambs & Sheep	—	23	1	140	164
Kids & Goats	—	—	—	22	22

The above figures represent in lbs. as follows:—

Beef 549,771 lbs.; Pork 570,990 lb.; Sheep 6,560 lb.; Goats 880 lb. 509 head of animals at a value of \$25,513 averaging 717 lb. each live weight, were imported from Honduras in 1948, contrary to Section 5 of the Foreign Animals Importation Ordinance 1923, which states that animals, imported from Honduras, must be examined and subsequently disposed of or released etc. by the Veterinary Officer or Stock Inspector. Certificate of health etc. must also accompany each shipment. The Veterinary Officer had no knowledge of such importations officially. Regulations regarding importation of animals from all countries should be revised and authority for carrying out such regulations put under one head—the Veterinary Officer. One similar case was reported from Stann Creek where a private individual imported animals from Jamaica without obtaining a permit or even an inspection upon arrival at Stann Creek.

SECTION II.

SOIL CONSERVATION.

The increased production of the staple crops, corn, rice and beans, resulted in some acceleration and spread of sheet erosion. This was marked in the Cayo and Toledo Districts in particular. Apart from the corn areas in these Districts which in effect were relatively small compared to the total area under cultivation, there was little radical change in the general situation during 1948.

The construction of roads in the Mountain Pine Ridge of the Cayo District was observed to be resulting in serious gully erosion. Any development of roads or buildings in this area will require careful attention to soil conservation measures if extensive sheet and gully erosion is to be avoided. Owing to the initially poor and sparse nature of the grass cover in the Mountain Pine Ridge, any large scale introduction of cattle will have to be undertaken with the greatest caution. Preliminary observations on a small scale in connection with cattle keeping for fire control were started in 1948. Unfortunately, suitably trained staff for ecological investigation and recording was not available. To be of lasting value, such observations and records should include a description and assessment of the flora and soil conditions before the introduction of livestock and progressive effects after their introduction.

Throughout the Colony the pastures continued to deteriorate with the resultant increase of such weeds as *Sida spp.* This causes the gradual disappearance of the normal grass cover of the soil and the exposure of the soil to erosion.

It was fortunate that, with the exception of the Northern plains, where the topography is such as to reduce the general effects of erosion, rainfall was well distributed and no heavy floods occurred during the year. The effects of such floods are likely to be increasingly serious with the present practice of clearing and burning the vegetation to the very edge of the river banks.

The field staff of the Department of Agriculture assisted with advice and help, especially with the planting and establishment of pastures of Guinea Grass and Para Grass (*Panicum maximum* and *Panicum purpurascens*). The Department was also responsible for propaganda to control the damage done by roam-

ing pigs in the neighbourhood of villages. In hilly areas these animals are responsible for severe erosion along paths and in open fields.

SECTION III.

WORK OF THE DEPARTMENT OF AGRICULTURE. STAFF.

Mr. C. W. L. Fishlock, Director of Agriculture, and Dr. P. G. Everett, Veterinary Officer, were on duty in the Colony throughout the year.

Mr. G. A. Southwell, Assistant Agricultural Officer, returned from leave on 30th June 1948. He was posted to Stann Creek until the 16th October when he was transferred to be in charge of the Central Farm, Cayo.

Mr. M. P. Benjamin, Assistant Agricultural Officer, proceeded to Trinidad on the 21st April for a short course of training in the principal aspects of cacao production. He subsequently went on vacation leave from 28th August to the 31st December when he returned to Belize.

Mr. D. D. Haynes, Agricultural Instructor, was in charge at Stann Creek until the 8th April when he was transferred to Punta Gorda.

Mr. S. A. W. Boyd, Junior Agricultural Instructor, was in charge at Corozal throughout the year.

Mr. F. F. Orio, Senior Farm Demonstrator and Mr. I. Stephenson, Farm Demonstrator, were in charge of agricultural work in the Cayo and Belize Districts respectively throughout the year.

The posting of the other staff of the Department was as follows:—

Designation	DISTRICT.					Total
	North- ern	Toledo	Stann Creek	Belize	Cayo	
Senior Farm Demon- strators	—	—	1	—	1	2
Farm Demonstrators Grade I	2	1	—	—	1	4
Farm Demonstrators Grade II	3	2	3	2	1	11
Temporary Demon- strators	2	4	1	1	1	9
TOTAL	7	7	5	3	4	

The total for Senior Farm Demonstrators includes the Officer in Charge, Cayo. During the year two Farm Demonstrators Grade II and three Temporary Demonstrators were dismissed. Two Mayan Indians were trained and employed on probation in Toledo District as Temporary Demonstrators.

FOOD PRODUCTION.

The concerted drive towards self sufficiency in the Colony's staple foods continued with increased force. In this connection the increased production of rice by small growers in all Districts was encouraging. Yields were good except in the Belize District where climatic conditions were unfavourable. In the south of the Colony provision early in the year for an increased number of Rice Reserves enabled growers at such centres as Monkey River to play their part. This centre demonstrated the great value of such a Reserve reasonably close to a township, for previously growers in Monkey River had been disheartened by the lack of good agricultural lands easily accessible from the town. In consequence nutrition and health generally were of a low order. The small rice industry provided work and food for the men and their families and in addition a useful economic crop from the sale of which growers received a cash return of over \$3,300 during the year. The production and sale of this crop in the previous year had been negligible.

There is still a very long way to go before the Colony's total annual requirement of approximately 5,000,000 lb. of clean rice can be met from

local production. With this in view the "Dump" area of the Toledo District was surveyed in January and a development programme worked out together with estimates of cost. Funds were not forthcoming early enough for the project to be started in time for the 1948 rice season, however. Another promising area within reasonable distance of Belize was also explored. Here the old river bed of the Belize River appears to offer possibilities for a 10,000 acre unit of production. An attractive feature of this site is the absence of bush on the area owing to the fact that for three or four months of the year it is flooded. Control of these flood waters will be required to permit large scale mechanical cultivation and harvesting.

A disturbing feature of increased food production is its present relatively high cost, not only to the producer, but unfortunately, to the Colony as a whole, for with the "milpa" system valuable areas of forest are destroyed. The present system of production calls for careful investigation and demonstration of methods for cheap and efficient production without waste of the natural assets of timber and soil fertility. In this connection a rational system of land utilization is most necessary if this Colony is to produce its food requirements at a reasonable cost.

AGRICULTURAL EXTENSION WORK.

In an attempt to overcome the transport difficulties which have largely vitiated this work in the past, Farm Demonstrators were encouraged by means of advances to purchase their own horses; in other instances boats were purchased; in three instances with outboard motors; to facilitate work by sea and river. This did not solve the difficulties of producers in getting their produce to market, however. For this, work for the survey of feeder roads in the larger producing areas continued with the object of actually getting part of this programme completed in 1949.

The Department actively encouraged and assisted with the development of co-operative efforts by growers and producers in an attempt to solve some of the many problems confronting the agricultural industry throughout the Colony. A successful example of this was the Rice Scheme at Monkey River which has been referred to already. In other Districts the results of this work though not so spectacular, were nevertheless effective in laying the foundations for future progress in this direction.

The provision of stud bulls and boars in the principal agricultural areas continued to be the basis for extension work for the improvement of livestock generally. The better feeding and care of livestock received greater attention as a result of the training given during the year to selected Farm Demonstrators in the diagnosis and treatment of the commoner complaints of livestock of all kinds.

In the Carib Reserve of the Stann Creek Valley a small demonstration with ox drawn ploughs was undertaken at the request of a group of growers who were sufficiently impressed with the results to pay all expenses for this work. In the Northern District a useful large scale demonstration of ploughing and planting with sugar cane on one of the small estates has given striking results in comparison with those of the usual "milpa" system of sugar cane production.

The coconut industry in the Northern District received attention and advice and help was given growers in so far as lay within the powers of the Department. Unfortunately, it was difficult to convince growers that self help and co-operative action among themselves were the criteria for the effective amelioration of the conditions which existed in the coconut groves.

AGRICULTURAL STATIONS.

As a result of economies effected in the operation of the older Agricultural Stations, sufficient funds were available to make a start with the development of the Central Farm in the Cayo District. The Baking Pot Estate had been acquired in September with funds from Colonial Development and Welfare, to be the Central Farm for the Department. The area of the Farm is approximately 1,500 acres bounded on the east and north by the Garbutt Creek and the Belize

River respectively. The close survey of the Estate was undertaken by the Survey Department to establish the Western boundary and compute the exact acreage. This survey was extended to give levels for the preparation of a large scale contour map on which to base the future layout and cropping programme of the farm. The labour for the opening up and clearing of the farm lands was found by the selection and settlement near the Garbutt Creek of unemployed ex-servicemen from Belize. The intention was to educate these men to practical farm work with a view to their ultimate appreciation of agriculture as a permanent occupation and their settlement on the land.

The site for the residential quarters and offices for the headquarters staff of the Department was selected to the south of the Belize to Cayo main road and the first house was erected by the Public Works Department before the end of the year. Temporary housing was also provided for an increasing number of ex-servicemen and for the staff.

Machinery and equipment were transferred from other Agricultural Stations and by the end of the year a useful start had been made with the establishment of a vegetable garden and small areas of beans, peas, sesame, grains and Sea Island cotton. This last was the St. Vincent variety No. V 135.

With the establishment of the Central Farm, the work of the two small Agricultural Stations in the Cayo District was transferred there. The Corozal Agricultural Station was reduced to little more than a stud centre. That at Punta Gorda conducted trials with promising rice varieties for seed improvement. The Stann Creek Station concentrated principally on nursery work for the production of budded citrus and other tree crops. As a result of the development of the industry in the Stann Creek Valley, the Station received substantially increased orders for budded material. Those for Valencia Oranges amounted to over 30,000 and for Genoa lemons over 10,000, with other varieties such as Washington Navel, King Mandarins and Marsh Grapefruit also shewing substantial increases over previous years. These greatly increased demands could not be met with funds available for this purpose and commercial interests were encouraged to establish their own orchards.

Distribution of budded citrus from the Stann Creek Station amounted to 4,495 plants of which over 3,000 were Valencia oranges and over 1,000 Genoa lemons.

In addition to citrus, the Stann Creek Station distributed the following:—

Grafted Mangoes (8 varieties)	....	....	....	135
Seedlings of other economic trees	....	....	....	150

Agricultural Education. Apart from help with school gardens throughout the Colony, the principal activity in this connection was the four weeks course in livestock work held at Stann Creek during April and May, the completion of the training of two Mayan Indians from Toledo for work as Temporary Demonstrators among their own people, and the start of the ex-servicemen's scheme at the Central Farm.

CROP INVESTIGATIONS.

Rice. Progeny row trials with 31 varieties with B.G. 79 as control were undertaken at Punta Gorda. The trials were planted late in the season and due to "volunteer" plants of B.H. Creole and B.G. 79 in the varieties under test they had to be very severely rogued. The results were therefore inconclusive.

Multiplication trial plots with 17 varieties including B.H. Creole, although late planted, gave encouraging results with the variety "Lead" giving yields well in advance of any of the other varieties tried.

Owing to the late start with these trials and the fact that the seed had been stored for over two years, no great reliability can be placed on them. With an earlier start and better seed it is hoped in 1949 to have more conclusive figures on which to work for the multiplication of seed to replace the present mixture of varieties sown by growers. This mixture was discovered to contain a high proportion of black and red rices, and from the point of view of yields was undesirable.

The progeny row trials were made in small ponds under controlled irrigation. Larger ponds were used for the multiplication trials.

Corn. A small field trial with two local types of maize and four different planting dates in the autumn was undertaken at Stann Creek. The weather was unfavourable and there was difficulty in establishing the crop. It is hoped to

have some information as to the value of autumn planted maize as a result, however.

Cacao. The Pomona plot proved unlikely to yield any useful results and was abandoned. A small beginning was made to establish plants from selected cacao trees, in the nursery at Stann Creek.

Trials with the fermentation and curing of small samples of cacao produced by Mayan Indians in the Toledo District were made at Punta Gorda. As a result one grower adopted improved methods of fermenting and drying his crop.

Cotton. Results with small plots of Montserrat Sea Island cottons were again disappointing. This was due in many instances to inability by the staff to supervise plots in distant parts of their areas. It was impossible, unfortunately, to get a plot of this cotton established on the Central Farm owing to the lateness of the season by the time preparations for this could be made there. A late sown plot of St. Vincent Sea Island germinated satisfactorily and made good early growth. It is hoped to obtain sufficient seed to undertake a trial in 1949 together with M.S.I. from Montserrat.

Sugar Cane. By courtesy of the Director of Agriculture, Barbados, planting material of six of the Barbados selections most likely to succeed here were received towards the end of the year and planted at the Corozal Agricultural Station.

MARKETING CENTRES.

The Agricultural Stations were the principal out-district centres for the purchase of corn and rice paddy.

Total purchases, as shewn by returns, were:—

Station	Corn Purchases	Paddy Purchases
Corozal	289,636 lb.	26,931 lb.
Toledo	—	448,988 „
Stann Creek	12,199 „	—
TOTAL	301,835 lb.	475,919 lb.

Rice Seed and Cash Loans. The Agricultural Stations continued to be the centres for the issue and collection of these loans which were made as follows:—

Station	Seed Loaned (Paddy)	Repaid	Cash Loaned	Cash Repaid
Punta Gorda	47,632 lb.	19,757 lb.	\$3,687.00	\$2,492.00
Stann Creek	4,126 „	421 „	907.50	—
El Cayo	1,748 „	445 „	50.00	50.00
TOTAL	53,506 lb.	20,623 lb.	\$4,644.50	\$2,542.00

Other services rendered by Agricultural Stations included the sale of such items as bean seeds of different varieties, vegetable seeds, insecticides, fencing wire, reaping hooks for rice harvesting, planting material of fodder grasses, yams, cassava and sweet potatoes.

REVENUE COLLECTED BY THE DEPARTMENT.

The staff of the Department were responsible for the collection of revenue for the various services rendered by the Department as shewn below:—

STATION.

ITEM	Punta Gorda	Stann Creek	Cayo & Baking Pot	Corozal	Belize
Sale of Produce etc.	\$56.91	\$1,214.04	\$167.34	\$549.71	\$225.62
Sale of Materials etc.——	6.57	6.00	2.33	11.51	1.37
Sale of Fencing Wire	180.00	360.00	510.00	230.00	930.00
Extension of Food Production (Scheme D229)	88.69	121.91	68.29	170.55	133.03
Deposits—Fees Pub- lic Officers (Vet- erinary Services)	—	—	21.06	69.54	92.60
Sale of Government Stores	—	—	—	3.60	16.24
Advances—Board of Agriculture	—	113.25	—	10.59	1.00
Rice Loans (Cash)	2,492.00	—	50.00	—	157.01
Sale of Fertilizers	—	67.27	—	—	2,971.97
Corn Seed	—	—	—	—	32.54
TOTAL	\$2,824.17	\$1,882.47	\$819.02	\$1,045.50	\$4,561.38

The total revenue collected by the Department during the year amounted to \$11,132.54. The figure for 1947 was \$3,227.44.

LEGISLATION.

The Ordinance of major importance in so far as agriculture was concerned was that providing for the establishment of a Marketing Board for the marketing of all products of the Colony and *inter alia* for the operation of mills and other plants for the processing of such products, for trade in agricultural commodities such as feeding stuffs for livestock, seeds, fertilizers and insecticides and agricultural credit. The officers of the Board are the Marketing Officer, Chairman, the Financial Secretary and five other members to be appointed by the Governor.

The Board of Agriculture Ordinance 1936 was repealed.

Another Ordinance of agricultural significance was the Land Acquisition (Amendment) Ordinance of 1948.

C. W. L. FISHLOCK,

Director of Agriculture.

TABLE I.
AGRICULTURAL PRODUCTS—EXPORTS 1947 & 1948.

Produce	Destination	1947		1948	
		Quantity	Value	Quantity	Value
Coconuts (No.)	U. S. A.			2,525,300	\$125,017
	Canada			352,500	25,162
	Jamaica			50,000	4,250
	Total	3,294,195	155,438	2,927,800	154,429
Bananas (Bunches)	U. S. A.			113,886	65,047
	United Kingdom			33	10
	Total	162,327	86,044	113,919	65,057
Plantains (Bunches)	U. S. A.			3,200	1,018
	Mexico			177	30
	Total	8,828	4,724	3,377	1,048
Grapefruit (Fresh) (Cwt.)	Mexico	624	527	986	718
Grapefruit (Juice) (lb.)	United Kingdom	5,940,464	416,904	4,848,870	429,473
Oranges (Fresh) (Cwt.)	Mexico	1,674	3,442	1,384	2,511
Orange Juice (Lbs.)	United Kingdom	N I L		30,090	2,609
Tangerines (Cwt.)	Mexico	N I L		197	122
Pineapples (Cwt.)	Total	38	210	N I L	
Other Fruits (Cwt.)	Mexico			252	660
		81½	4,049	252	660
Cocoa (Raw) (Cwt.)	Mexico	112	1,448	47	443
Cocoa (Prepared) (Cwt.)	Mexico	115	4,070	N I L	
Coffee (Prepared) (Cwt.)	Mexico	2	83	N I L	
Corn (Cwt.)	Jamaica			5,179	28,929
	United Kingdom			2,001	10,385
	Mexico			176	520
	Total	N I L		7,356	39,834
Pulses (Cwt)	Mexico	430	3,349	12	126
Vegetables (Fresh) (Cwt)	Mexico	N I L		150	789
Sugar (Cwt.)	Honduras	79	873	N I L	
Total Agricultural Produce		\$681,161		\$697,819	

TABLE II.
IMPORTS OF FOODSTUFFS.

Commodity	From	1947 Quantity	Value	1948 Quantity	Value
Cattle (No.)	Honduras	622	\$34,101	509	\$25,553
Cattle (No.)	Jamaica	2	525	25	5,056*
Swine (No.)	Honduras			8	8*
	U. S. A.			4	203*
	Total	N i L		12	211*
Butter (Cwt.)	Australia			1,824	111,393
	Other Countries			34	1,748
	Total	2,055½	111,590	1,858	113,141
Butter Substitutes (Cwt.) ..	United Kingdom			689	21,681
	Phillipine Is.			305	15,299
	U. S. A.			16	689
	Total	688	29,953	1,010	37,669
Cheese (Cwt.)	U. S. A.			496	28,213
	Canada			327	15,624
	Australia			111	4,892
	Holland			25	1,821
	Total	1,426	82,309	959	50,550
Rice (Cwt.)	Honduras			17,238	175,654
	U. S. A.			6,213	63,994
	Guatemala			892	9,497
	Cayman Is.			124	1,322
	Total	22,293	217,506	24,467	250,467
Pulses (Cwt.)	U. S. A.			3,934	62,332
	Chile			2,434	37,551
	Canada			372	4,337
	Guatemala			10	69
	Honduras			2	21
	Total	8,329½	140,547	6,752	104,310
Flour (Wheaten) Bags of 196 lb	U. S. A.			27,068	345,792
	Canada			9,675	149,459
	Total	36,868½	510,051	36,743	495,251
Farinaceous Preparations (Cwt.)	U. S. A.			63	1,032
	Canada			24	456
	Total	470½	7,631	87	1,488
Lard & Lard Substitutes (Cwt.)	United Kingdom			2,289	88,984
	U. S. A.			651	24,451
	Canada			347	12,485
	Honduras			231	7,883
	Total	2,770	103,407	3,518	133,803
Milk (Condensed and Unsweetened) (Cwt.) ..	Canada			10,840	269,744
	U. S. A.			5,117	126,943
	Holland			636	16,217
	Total	16,846	375,606	16,593	412,904

Milk (Powdered) (Cwt.)	Canada	299	18,842
	U. S. A.	254	16,140
	Argentina	4	201
	Total	354½	35,183
Beef, Salted in Barrels (Cwt) ..	Canada	316	9,643
	Australia	68	1,698
	Uruguay	62	1,750
	Total	639	13,091
Pork (Various in Barrels) (Cwt.)	Canada	3,146	79,737
	U. S. A.	177	5,216
	Total	1,988½	84,953
Onions (Cwt.)	U. S. A.	1,891	12,708
	Canada	737	6,279
	Egypt	579	4,673
	Holland	147	812
	New Zealand	110	1,114
	Total	3,148	25,586
Irish Potatoes (Cwt.) ..	U. S. A.	4,744	36,835
	Canada	603	4,159
	Holland	123	586
	Total	5,365	41,580
Garlic (Cwt.)	Mexico	60	996
	Guatemala	29	667
	Honduras	14	442
	Total	110½	2,105
Eggs (Doz.)	Mexico	2,372	1,740
	U. S. A.	768	539
	Honduras	37	18
	Total	1,874	2,297
Maize, corn or oatmeal (Cwt.)	U. S. A.	70½	496
Poultry (No.)	Honduras	N i L	33
Poultry (No.)	U. S. A.	2,816	664*
Other Fresh Vegetables (Cwt.)	U. S. A.	769	8,968
Sugar (Refined) (Cwt.) ..	Jamaica	3,519	25,425
	Canada	22	290
	Total	3,564	25,715
Rum (Gallons)	Jamaica	104	571
	Cuba	20	210
	Total	242	781
TOTAL		\$1,883,514	\$1,871,855

NOTE: *—For Breeding Purposes.

TABLE III.
METEOROLOGICAL FIGURES—VARIOUS AGRICULTURAL STATIONS.
AGRICULTURAL STATION COROZAL.

MONTH	RELATIVE HUMIDITY			RAINFALL		RELATIVE HUMIDITY			RAINFALL		RELATIVE HUMIDITY			RAINFALL	
	Average	Highest	Lowest	Inches	Rain Days	Average	Highest	Lowest	Inches	Rain Days	Average	Highest	Lowest	Inches	Rain Days
January	81	96	65	3.05	13	92	96	88	1.87		92	96	88	1.87	6
February	87	96	59	1.39	8	80.5	96	45	.23		80.5	96	45	.23	2
March	85.5	96	70	.72	4	66.5	92	47	Nil		66.5	92	47	Nil	Nil
April	89.5	96	54	.13	2	65	96	48	2.75		65	96	48	2.75	8
May	93	96	66	.86	3	79.5	96	55	3.47		79.5	96	55	3.47	5
June	86	96	54	1.22	7	79	96	57	19.56		79	96	57	19.56	17
July	87	96	57	7.11	10	86.5	96	62	9.99		86.5	96	62	9.99	17
August	92	96	83	6.45	11	56.5	96	—	7.81		56.5	96	—	7.81	11
September	93	96	63	5.62	11	1.40	96	72	6.34		1.40	96	72	6.34	13
October	92	96	74	5.27	7	88	96	86	1.90		88	96	86	1.90	8
November	83	96	59	5.02	8	80	96	62	5.09		80	96	62	5.09	11
December	89	96	64	3.03	9	86	96	58	3.22		86	96	58	3.22	9
				39.87	93				62.23					62.23	107

AGRICULTURAL STATION STANN CREEK.

MONTH	RELATIVE HUMIDITY		7 Inches	RAINFALL Rain Days	SHADE TEMPERATURE		RELATIVE HUMIDITY		9 Inches	4 Inches	8 Rain Days	SHADE TEMPERATURE		
	Average	Highest			1 Lowest	9 Lowest	Mean	Minimum				Mean	Minimum	
January	78.8	96	55	3.24	22	83.3	68.7	78.2	100	39	4.78	26	82.4	66.0
February	75.8	100	59	11.2	11	82.1	65.7	76.5	91	64	2.44	19	83.3	67.7
March	78.8	91	56	5.48	14	84.9	70.1	69.3	92	47	.10	6	86.4	66.5
April	75.3	83	56	.33	8	87.	73.3	67.7	83	46	.48	10	89	69.9
May	74.1	87	63	1.00	11	90	73.8	74.1	96	44	5.39	12	88.4	73.5
June	90.5	100	83	6.7	11	89.7	73.6	80.5	100	50	13.29	19	86.6	73.3
July	90.9	100	58	7.84	21	87.2	73.9	81.0	100	69	8.27	21	86.8	73.7
August	95.4	100	77	11.98	11	94.4	96.4	74.9	95	63	7.33	21	88.5	73.0
September	94.4	100	73	11.70	26	87	73.1	77.7	95	62	7.71	22	88.4	72.7
October	77.1	100	53	7.50	16	88.1	71.5	77.0	100	55	5.33	18	88.0	70.8
November	Not Available	Not Available	Not Available	7.65	5	Not Available	80.4	80.4	100	64	8.51	23	85.3	71.1
December	Not Available	Not Available	Not Available	2.77	4	Not Available	81.2	81.2	95	66	9.10	26	82.5	68.9
				77.39	160							223		

AGRICULTURAL STATION PUNTA GORDA.

MONTH	RELATIVE HUMIDITY			RAINFALL Inches	4	7	SHADE TEMPERATURE			Rain Days	SHADE TEMPERATURE			RELATIVE HUMIDITY			RAINFALL Inches	4	8	SHADE TEMPERATURE			
	Average	Highest	Lowest				Mean	Minimum	Mean		Minimum	Average	Highest	Lowest	1	9				Rain Days	Maximum	Mean	Minimum
January	..	70	100	66	13.04	18	88	69.2	73	100	53	7.70	12	83.2	61.4								
February	..	90	100	71	7.66	11	88.1	61.8	80	100	56	5.89	11	89.0	62.7								
March	..	77	100	57	2.75	12	91.5	65.2	73	100	51	.99	5	89.1	65.0								
April	..	73	87	51	8.46	11	89.7	66.9	73	100	36	4.44	13	86.7	Not Available								
May	..	74	100	63	8.35	11	91.9	68.3	75	100	56	14.55	12	90.2	Not Available								
June	..	77	100	60	16.15	13	92.6	68.1	79	100	66	29.36	25	87.7	Not Available								
July	..	80	100	41	22.50	27	90.1	68.8	78	100	63	42.31	30	87.8	Not Available								
August	..	85	100	69	37.00	26	88.9	67.5	77	100	55	19.23	26	87.5	Not Available								
September	..	55	100	51	18.70	25	86.8	69.3	74	100	63	21.65	23	86.9	Not Available								
October	..	76	96	48	12.20	89.3	68.5	75	95	54	4.28	15	85.4	Not Available	Not Available								
November	..	79	100	65	13.54	11	89.3	68.3	79	100	54	10.10	15	84.5	Not Available								
December	..	79	100	51	17.72	17	86.0	65.8	81	100	65	12.41	20	82.4	Not Available								
					178.07	199						172.91	207										

TABLE IV.
RAINFALL FIGURES FOR TEN YEAR PERIOD—VARIOUS TOWNS.
COROZAL.

MONTH	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
January	1.94	2.52	1.36	1.76	5.82	2.22	1.07	3.16	3.69	1.47
February	.50	.14	.28	.44	2.44	1.40	1.09	2.87	1.47	.62
March	1.85	1.71	.17	.57	1.87	2.75	.37	1.15	.46	Nil
April	.55	.62	1.26	1.20	6.24	.29	.01	.56	Nil	2.50
May	4.33	11.34	19.13	6.51	4.51	1.29	4.28	1.12	.55	2.57
June	7.86	9.98	1.16	5.42	5.83	18.72	1.76	5.57	1.29	14.19
July	2.72	5.85	5.33	8.93	.98	7.86	5.04	3.56	5.33	8.09
August	2.06	6.46	5.00	5.56	4.50	11.53	11.21	6.39	6.29	8.75
September	7.61	7.71	7.55	10.78	6.68	8.83	11.68	9.90	5.16	6.99
October	1.69	3.62	6.33	2.37	7.21	4.61	4.01	11.18	4.11	2.44
November	3.81	5.26	2.39	14.89	1.71	3.01	5.05	3.36	7.42	7.35
December	.73	6.30	5.06	7.73	2.78	.24	4.27	4.78	3.70	2.45
	35.65	61.51	55.02	66.16	50.57	62.75	49.84	53.60	39.47	57.42

ORANGE WALK

MONTH	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
January ..	2.14	5.59	3.93	1.00	4.66	4.51	.95	1.83	7.05	3.15
February ..	.49	.11	.15	.50	1.75	2.79	3.95	2.48	4.59	.40
March ..	1.97	1.94	.32	.27	2.66	3.53	1.00	.47	.59	Nil
April ..	.36	1.36	2.76	2.59	1.59	.99	Nil	1.90	Nil	2.48
May ..	2.50	5.50	13.30	7.59	2.83	.33	6.07	.05	.91	3.61
June ..	5.65	11.69	2.05	9.20	8.87	25.81	6.07	5.81	6.43	14.11
July ..	2.32	9.89	4.40	11.54	2.82	6.49	4.94	4.39	11.61	Not Available
August ..	3.60	2.96	3.35	10.36	2.19	7.51	15.37	5.62	9.50	"
September ..	9.54	8.19	7.10	15.30	8.09	13.81	20.46	8.35	8.96	"
October ..	3.12	4.45	6.71	3.23	6.64	1.43	2.71	13.74	4.95	"
November ..	.78	5.01	3.85	5.01	3.09	2.87	Nil	.91	4.62	"
December ..	.59	2.20	7.71	3.93	2.47	1.77	6.08	3.72	8.56	"
	33.06	58.89	55.63	70.52	47.66	71.84	67.60	49.27	67.77	

CAYO

MONTH	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
January ..	2.75	5.24	3.19	2.07	4.18	1.10	1.07	4.24	3.32	3.07
February ..	2.98	Nil	1.34	1.26	4.51	.34	.63	3.31	2.52	1.20
March ..	.31	2.90	2.52	3.24	3.27	1.76	.09	.49	1.49	Nil
April ..	1.51	1.92	2.72	2.82	2.50	.11	.04	.25	.72	.59
May ..	2.65	5.18	11.02	6.08	3.77	1.66	1.92	.22	.10	Not Available
June ..	4.14	4.33	2.37	7.10	7.93	7.44	2.04	6.16	5.58	"
July ..	3.26	8.26	5.55	10.55	3.27	6.09	4.55	6.75	13.23	"
August ..	5.35	2.58	3.06	6.43	2.40	3.52	7.13	3.54	4.71	"
September ..	10.03	14.73	4.06	8.67	3.28	3.33	15.01	5.17	10.03	"
October ..	4.37	5.91	8.34	6.39	12.32	2.35	10.06	18.96	9.26	"
November ..	2.15	4.53	6.57	11.44	5.47	1.04	4.61	2.75	3.68	"
December ..	1.46	6.19	9.41	6.20	3.13	4.14	5.74	5.63	5.14	"
	40.96	61.77	60.15	72.25	56.03	32.88	52.89	57.47	59.78	

STANN CREEK.

Month	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
January ..	5.58	4.38	7.36	1.76	4.78	10.97	7.30	4.91	8.93	8.40
February ..	2.31	Nil	1.51	3.20	2.92	2.17	.60	6.26	10.83	10.80
March ..	1.59	1.52	3.19	.84	8.97	7.88	.91	.50	9.83	.10
April ..	Nil	Nil	4.98	7.16	10.15	.57	Nil	Nil	.82	.45
May ..	5.08	4.23	7.98	6.76	7.74	7.89	18.53	.32	Nil	8.95
June ..	9.03	6.04	1.92	7.74	15.98	31.24	6.76	23.63	12.62	24.10
July ..	7.00	10.82	5.49	14.30	10.42	20.95	8.22	16.56	19.46	11.80
August ..	6.63	6.18	8.34	8.26	4.85	7.37	22.00	11.58	34.44	9.81
September ..	8.97	11.55	8.17	12.14	8.39	17.68	35.08	18.49	18.83	9.31
October ..	12.02	17.70	16.20	5.38	28.85	11.27	15.83	25.17	7.46	7.28
November ..	1.30	6.75	10.78	10.98	15.77	11.23	30.91	17.11	9.59	9.59
December ..	3.36	3.76	8.22	10.94	23.04	13.45	9.13	19.15	19.86	11.61
	62.87	72.93	84.14	89.46	141.86	142.67	155.27	143.68	152.67	112.20

PUNTA GORDA.

MONTH	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
January ..	10.21	4.12	3.38	5.64	6.71	8.77	6.60	18.08	12.06	15.01
February ..	1.96	.89	3.00	2.59	8.76	3.65	5.18	11.91	6.66	6.95
March ..	2.19	.53	.76	3.66	10.09	1.13	3.55	6.71	3.74	.19
April ..	2.48	.72	4.49	6.18	4.83	1.46	1.38	4.30	6.69	6.20
May ..	5.19	11.91	24.77	20.98	9.75	13.44	10.03	6.48	12.71	13.94
June ..	25.64	21.72	12.58	21.87	28.73	22.37	22.24	40.97	28.77	27.64
July ..	25.35	44.91	26.51	30.56	19.84	11.16	25.36	31.92	31.55	13.56
August ..	42.82	24.50	17.15	25.85	26.74	8.76	34.13	28.03	36.44	10.45
September ..	22.64	16.76	20.04	30.50	14.15	8.93	38.37	21.03	25.99	23.03
October ..	24.04	11.20	15.64	9.39	11.94	1.29	12.40	13.93	15.04	8.79
November ..	2.80	12.43	7.73	12.48	11.43	10.00	18.26	13.63	9.93	25.76
December ..	3.03	7.53	1.12	16.45	12.98	8.39	13.86	10.64	19.18	10.44
	168.35	157.22	137.17	186.15	165.95	99.35	191.36	207.63	208.76	161.96

